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BARBECUE GRILL ASSEMBLY WITH A SHELF COMPONENT

CROSS-REFERENCE TO RELATED APPLICATIONS:

Not Applicable.

FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT:

Not Applicable.

TECHNICAL FIELD:

The present invention relates to a barbecue grill assembly with a shelf component. More specifically, the present invention relates to a shelf for a barbecue grill assembly that provides support to a portion of the assembly.

BACKGROUND OF THE INVENTION:

As the popularity of gas barbecue grills has increased, manufacturers have employed many types of shelves or trays for use in the frame supporting the barbecue grill. Generally, the tray is connected to a lower portion of the frame. The vast majority of existing trays are

sheet metal or plastic, and have a thin-wall construction. Typically, the trays are connected to the extremities of the lower portion with fasteners such as nuts and bolts. The tray can be configured to provide support for other elements, including a fuel tank.

A concern with trays of this type is the difficulty in properly connecting the tray to the lower portion of the frame. A second concern is providing sufficient structural integrity of the tray and frame. A related concern is a possible loss of structural integrity due to the multiplicity of fasteners used to connect the tray to the lower portion of the frame.

An example of a gas barbecue grill having a tray design susceptible of such concerns identified above is U.S. Patent No. 5,579,755 to Johnston. As shown in FIGS. 1 and 2 therein, the barbecue grill is supported by a complex frame with a lower portion. The tray is connected to vertical supports positioned at the extremities of the lower portion of the frame. A combination of threaded fasteners and nuts are used to connect the tray to the vertical supports. Prior to connecting the tray to the vertical supports, the lower portion of the frame lacks any cross-member support.

Due to the thin-wall construction of the tray and the use of threaded fasteners that are susceptible to loosen over time, the frame may naturally experience a reduction in structural integrity.

Another example of a barbecue grill design with the concerns identified above is U.S. Patent No. 5,072,718 to Seal. Referring to FIG. 2 therein, the barbecue grill is supported by a frame comprising a plurality of bent tubular members and a tray. The tray is connected to vertical supports positioned at the extremities of the frame. A combination of threaded fasteners and nuts are used to connect the tray to the vertical supports. Like the '755 Patent to Johnston, prior to connecting the tray to the vertical supports, the lower portion of the frame lacks any cross-member support.

Therefore, there is a definite need for a shelf for use in a barbecue grill assembly that is durable and provides an enhanced degree of structural integrity to the frame supporting the barbecue grill. In addition, there is a need for a shelf that can be simply and reliably connected to the frame without the use of fasteners.

The present invention is provided to solve these and other problems.

SUMMARY OF THE INVENTION:

The present invention relates to a barbecue grill assembly comprising an upper frame assembly and a lower frame assembly, the upper assembly adapted to receive a cooking chamber. The lower assembly having a shelf and a plurality of lower frame members. The lower frame members define an interior space. The shelf is a rigid structure with a perimeter cooperatively dimensioned with the interior space such that the shelf can be positioned within the interior space. Alternatively, the barbecue grill assembly has a single frame assembly with a plurality of frame members defining an interior space.

At least one of the lower frame members has an aperture. The shelf has at least one pin positioned on an edge of the shelf. The pin is cooperatively dimensioned with the aperture such that the pin is removably received by the aperture. When the shelf and the frame member are connected in this manner, the lower assembly has a rigid and stable construction thereby increasing the structural rigidity of the barbecue grill assembly.

Because the pin is adapted to be removably received by the aperture, the shelf can be quickly and easily disengaged from the lower frame member. As a result, the packaging and storage options for the grill assembly are increased.

In another preferred embodiment of the invention, the shelf has at least one securing member and at least one supporting member. The securing member is adapted to move between a first position, wherein the securing member engages an inner portion of the lower frame member, and a second position, wherein the securing member engages a bottom portion of the lower frame member. In the second position, the supporting member engages at least an upper portion of the lower frame member.

The first position is a transitory position, whereas the second position is a stable position. In the second position, the shelf is connected to the lower frame member thereby securing the lower assembly. As a result, the structural rigidity of both the lower assembly and the barbecue grill assembly is increased.

In another preferred embodiment, the shelf has at least one securing member, one supporting member, and one finger. In the first position, the finger slidingly engages an inner portion of the lower frame member. In the second portion, the finger engages the inner portion to prevent movement of the shelf with respect to the lower frame member.

Other features and advantages of the invention will be apparent from the following specification taken in conjunction with the following drawings.

BRIEF DESCRIPTION OF THE DRAWINGS:

FIG. 1 is a front elevation view of a barbecue grill assembly including a shelf of the present invention;

FIG. 2 is an exploded elevation view of the barbecue grill assembly of FIG.1, showing the shelf connected to a lower frame assembly;

FIG. 3 is a partial elevation view of a first end of the shelf of FIG. 1;

FIG. 4 is a partial elevation view of a second end of the shelf of FIG. 1;

FIG. 5 is a perspective view of a second shelf embodiment;

FIG. 6 is an exploded view of the shelf of FIG. 5, showing the shelf prior to engagement with a plurality of lower frame members;

FIG. 7 is a partial perspective view of the shelf of FIG. 5, showing the shelf in a first position;

FIG. 8 is a partial perspective view of the shelf of FIG. 5, showing the shelf in a second position;

FIG. 9 is a partial perspective view of the shelf of FIG. 5, showing the shelf in the second position connected to the lower frame assembly;

FIG. 10 is a perspective view of a third shelf embodiment; and,

FIG. 11 is a perspective view of the shelf of FIG. 10.

DETAILED DESCRIPTION OF THE INVENTION:

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated.

A barbecue grill assembly **10** is shown in FIG. 1. The barbecue grill assembly **10** comprises an upper frame assembly **12** and a lower frame assembly **14**. The upper frame

assembly **12** has a configuration sufficient to receive and/or support a cooking chamber or firebox **16.** The upper frame assembly **12** is formed from a plurality of upper frame members **13**. In addition, the barbecue grill assembly **10** can include a control panel **18**, controls **20**, temperature gauge **21**, wheels **22**, and casters **24.**

Alternatively, the grill assembly **10** has a single frame assembly. This means that the grill assembly **10** does not have distinct upper and lower assemblies **12, 14**. In this configuration, the single frame assembly is adapted to receive and/or support the cooking chamber **16**. The single frame assembly is formed from a combination of frame members, including vertical, horizontal, and/or cross-members.

The barbecue grill assembly **10** made according to this invention includes a shelf **50** that is positioned within an interior space **40** of the frame or support structure. In the preferred embodiments shown in the figures, and used in the description herein, the support structure is made up of a number of frame members, including vertical members **26** and a form of cross-members **28**, such as horizontal struts. The frame members may form a part of the upper assembly **12** and a part of the lower assembly **14**. Alternatively, multiple frame members may by joined to form sub-assemblies that are joined together into the frame assembly. In an alternative embodiment, the interior space **40** may be defined by a plurality of spaced walls of a barbecue grill support cabinet.

The primary function of the shelf **50** is to substantially secure the lower frame assembly **14** in a grill assembly **10** having distinct upper and lower assemblies, and to substantially secure the frame assembly in a grill assembly **10** having a single assembly. In general terms, the shelf **50** secures members in a frame assembly in a generally rectangular configuration. With a grill assembly **10** that has distinct upper and lower assemblies **12, 14** that are spaced a distance apart, the cooking chamber **16** connects and secures the upper assembly **12** and the shelf **50** connects and secures the lower assembly **14**. With a grill assembly **10** that has distinct left and right assemblies that are spaced a distance apart, the cooking chamber **16** connects and secures a portion of the right and left assemblies and the shelf **50** connects and secures the remaining portion of the right and left assemblies.

The lower frame assembly **14** is partially formed from at least one frame member,

including lower vertical members **26** and lower cross-members **28**. The lower assembly **14** includes a shelf **50** positioned within the interior space **40** of the frame structure formed by the assemblies **12, 14**. Preferably, the members **26, 28** form two H-shaped sub-assemblies **30** spaced a distance apart to define an interior space **40** adapted to receive the shelf **50**. The shelf **50** is cooperatively dimensioned with the interior space **40** and is adapted to be generally positioned within the interior space **40** to connect the members **26, 28** and secure the lower frame assembly **14**.

Alternatively, the lower cross-members **28** are omitted and lower horizontal members (not shown) are included in the lower frame assembly **14**. In this configuration, the members **28** and the horizontal members define the interior space **40** and the shelf **50** connects the vertical members **26** and the horizontal members.

Preferably, the members **13, 26, 28** have a tubular configuration. However, single-sided and two- or three-sided members are within the scope of the invention. Multi-sided members can have a variety of cross-sectional shapes, including but not limited to square, rectangular, L-shaped, U-shaped, or circular.

In general terms, the shelf **50** is a rigid structure that is positioned within the interior space **40** to join the members **26, 28** and form the lower assembly **14**. Referring to FIG. 2, the shelf **50** provides structural integrity to the lower assembly **14** such that the lower assembly **14** can support the upper assembly **12** and the cooking chamber **16**. In addition to providing structural support to the lower assembly **14**, the shelf **50** is adapted to provide storage for the accessories used in connection with the grill assembly **10**.

As shown in FIGS. 3 and 4, the shelf **50** has a pair of opposed first edges **52** and a pair of opposed second edges **54**. The edges **52, 54** form a perimeter P of the shelf **50**. Although shown as having a generally rectangular configuration, the shelf **50** can have a variety of configurations, including square, elliptical or other curvilinear shapes.

Preferably, the shelf **50** is a wire rack formed from a plurality of welded rods. The shelf **50** comprises a plurality of longitudinal rods **60** and a plurality of transverse rods **62**. Although the transverse rods **62** are shown positioned below the longitudinal rods **60**, the orientation of the rods **60, 62** can be varied according to the design parameters of the shelf

50. A raised or angled portion **64** is positioned proximate the second edge **54**. Alternatively, the raised portion **64** is positioned proximate the first edge **52**. Because the shelf **50** is formed from a plurality of welded rods, the shelf **50** is stronger and more rigid than existing shelves having a thin-wall construction. Although shown as having a plurality of apertures or openings resulting from the intersection of the rods **62, 64**, the shelf **50** can have a solid construction without apertures or openings.

The shelf **50** has at least one pin **70** on each of the first ends **52**. Referring to FIGS. 3 and 4, the pin **70** extends from one of the longitudinal rods **60**. Alternatively, the pin **70** extends from one of the transverse rods **62**. Although five separate pins **70** are shown, the precise number of pins **70** varies with the design parameters of the shelf **50**.

As shown in FIG. 3, the pin **70** has a first portion **70a**, a second portion **70b**, and a third portion **70c**. The first portion **70a** is generally a vertical segment of the pin **70**. The second portion **70b** is generally a horizontal segment of the pin **70**. The third portion **70c** is generally a vertical segment of the pin **70**. The pin **70** is adapted to be removably received by an aperture **80** positioned in the cross-member **28**. The pin **70** and the aperture **80** are in a mating relationship. Accordingly, the pin **70** and the aperture **80** are cooperatively dimensioned such that a portion of the pin **70** is received by the aperture **80**. Also, the pin **70** and the aperture **80** are cooperatively positioned to facilitate the reception of the pin **70** by the aperture **80**. The aperture **80** has an inner diameter that is adapted for frictional engagement with the pin **70**. Alternatively, the aperture **80** is deformable for frictional engagement with the pin **70**. In a preferred embodiment, the third portion **70c** is removably received by the aperture **80**. When the third portion **70c** is received by the aperture **80**, the second portion **70b** engages a top wall **84** of the cross-member **28** and the first portion **70a** engages an inner wall **82** of the cross-member **28**. Alternatively, a bushing (not shown) is positioned within the aperture **80** wherein the bushing is adapted to receive a portion of the pin **70**. The bushing can be formed from metal or plastic.

As shown in FIGS. 3 and 4, the number of pins **70** can vary between the pair of opposed first edges **52** of the shelf **50**. Similarly, the number of apertures **80** can vary between the opposed sides of the lower assembly **14**. Varying the number of pins **70** and

corresponding apertures **80** between the first sides **52** ensures the proper assembly of the lower assembly **14** because the shelf **50** can be connected to the lower frame member **32** in only one manner.

When the shelf **50** is placed within the interior space **40** such that the pin **70** is received by the aperture **80**, the shelf **50** is connected to the lower frame member **28**. As a result, the structural integrity of both the lower assembly **14** and the grill assembly **10** is increased. Described in another manner, the shelf **50** provides structural integrity to the lower assembly **14** and the grill assembly **10** when the pin **70** is received by the aperture **80**.

Depending upon the configuration of the upper assembly **12**, the shelf **50** can be employed to connect to the upper frame members **13** of the upper assembly **12**. In this manner, the shelf **50** provides structural integrity to the upper assembly **12** and the grill assembly **10** when the pin **70** is received by an aperture positioned in the upper frame member **13**.

Because the pin **70** is removably received by the aperture **80**, the shelf **50** can be quickly and easily disengaged from the cross-member **28**. This is an important aspect for packaging and storage of the grill assembly **10** because the dimensions and configuration of the lower assembly **14** can be significantly reduced. In contrast to existing designs, no tools are required to disengage the shelf **50** from the cross-member **28** and disassemble the lower assembly **14**. When the pin **70** is disengaged from the cross-member **28**, the configuration and dimensions of the aperture **80** remain unchanged.

The shelf **50** can include means for locking (not shown) the pin **70** in the aperture **80**. By locking the pin **70** within the aperture **80**, the locking means further increases the structural integrity of the lower assembly **14**. The locking means can include a detent and a cooperating groove, a flange on the pin **70**, or a latch.

The shelf **50** and its related components, including the pin **52**, can be formed from plastic, steel, aluminum, or other metals, including metal alloys. FIGS. 1-4 show an open grill assembly **10**, meaning that the upper and lower assemblies **12, 14** are not enclosed. Panels and doors can be added to the grill assembly **10** to form an enclosed cabinet (not shown) positioned beneath the cooking chamber **16**. Consistent with the above disclosure,

the shelf **50** can be employed within the cabinet to form either a bottom wall or a top wall of the cabinet. In this configuration, the shelf **50** connects the panels and doors and provides structural integrity to the cabinet.

In another preferred embodiment, the grill assembly **10** has a single frame assembly, meaning that the grill assembly **10** does not have distinct upper and lower assemblies **12, 14**. As a result, there is no junction between the upper and lower assemblies **12, 14** and the grill assembly **10** has a continuous appearance. In this configuration, the single frame assembly is adapted to receive and/or support the cooking chamber **16**. The single frame assembly is formed from a combination of frame members, including vertical, horizontal, and/or cross-members. The frame members define an interior space **40** and the shelf **50** is cooperatively dimensioned with the interior space **40** such that the shelf **50** is positioned within the interior space **40**.

At least one frame member has an aperture cooperatively dimensioned with the pin **70**. Preferably, the frame member is located in a lower portion of the single frame assembly. However, the frame member can be located in an upper or intermediate portion of the single frame assembly. The aperture is adapted to removably receive the pin **70**. In a manner consistent with the above disclosure, the shelf **50** is connected to the frame member. Consequently, the shelf **50** provides structural integrity to the single frame assembly and the single frame assembly is secured by the connection of the shelf **50** and the frame member.

Another preferred embodiment includes a frame for an outdoor cooking device (not shown) generally comprising an upper frame assembly and a lower frame assembly. The shelf **50** is employed within the lower frame assembly in a manner consistent with the above disclosure. Accordingly, the shelf **50** connects the lower assembly and provides structural integrity to the lower assembly.

Instead of receiving a cooking chamber, the frame is adapted to receive a cooking device, for example an auxiliary burner such as an outdoor stove-top burner, or a deep fryer. The frame is adapted to be mobile such that the frame and the cooking device can be moved between various locations, thereby increasing the versatility of the frame.

In another preferred embodiment shown in FIG. 5, the grill assembly **10** includes a

shelf **150**. The shelf **150** has a pair of opposed first edges **154** and a pair of opposed second edges **156**. The edges **154, 156** form a perimeter P of the shelf **150**. Although shown as having a generally rectangular configuration, the shelf **150** can have a variety of configurations, including square, elliptical or other curvilinear shapes.

The shelf **150** has at least one securing member **152**. The securing member **152** is a flexible structure adapted to be deformed or displaced a distance. Preferably, the securing member **152** extends from the shelf **150** such that a clearance exists between the securing member **152** and the second edge **156**. The dimensions of the clearance varies with the configuration of the securing member **152**. Although shown as having an angular configuration, the securing member **152** can have a curvilinear configuration. Described in a different manner, the securing member **152** is an elongated tab that extends from the shelf **150**.

Preferably, the shelf **150** is a wire rack formed from a plurality of welded rods. The shelf **150** comprises a plurality of longitudinal rods **160** and a plurality of transverse rods **162**. Although the transverse rods **162** are shown in FIG. 5 as being positioned below the longitudinal rods **160**, the orientation of the rods **160, 162** can be varied according to the design parameters of the shelf **150**. A raised or angled portion **164** is positioned proximate the second edge **156**. Alternatively, the raised portion **164** is positioned proximate the first edge **154**. Because the shelf **150** is formed from a plurality of welded rods, the shelf **150** is stronger and more rigid than existing shelves having a thin-wall construction. Although shown as having a plurality of apertures or openings resulting from the intersection of the rods **162, 164**, the shelf **150** can have a solid construction without apertures or openings.

The shelf **150** has at least one support member **166.** The support member **166** is adapted to engage a portion of the cross-member **28** when the shelf **150** is connected to the cross-member **28**. Preferably, the support member **166** is positioned near the junction of the first and second edges **154, 156**. Alternatively, the support member **166** is spaced a distance from the junction of the first and second edges **154, 156**. Referring to FIG. 7, the support member **166** has a first portion **166a**, a second portion **166b**, and a third portion **166c** defining a recess adapted to receive a portion of the cross-member **28**. Although the support

member **166** is shown as having an angular configuration, the support member **166** can have a number of configurations, including a curvilinear configuration.

Although FIG. 5 shows four separate securing members **152** and four separate supporting members **166**, the precise number of these elements varies with the design parameters of the shelf **150** and the lower assembly **14**. Accordingly, the number of securing members **152** and supporting members **166** can be increased or decreased.

Referring to FIG. 6, the H-shaped subassemblies **30** of the lower frame assembly **14** are spaced a distance defining the interior space **40**. At an initial position **P0** (not shown), the shelf **150** is generally positioned within the interior space **40** but does not engage any portion of the lower assembly **14**. At the initial position **P0**, the lower assembly **14** lacks structural integrity because the H-shaped assemblies **30** are not connected. At the initial position **P0**, an initial clearance **C0** exists between the securing member **152** and the first edge **154** of the shelf **150**.

The shelf **150** is adapted to be moved between the initial position **P0**, a first position **P1**, and a second position **P2**. When a sufficient amount of force is applied to the shelf **150** in a downward direction, the shelf **150** moves from the initial position **P0** towards the first position **P1**. At the first position **P1**, shown in FIG. 7, the shelf **150** is positioned within the interior space **40** and in partial engagement with the lower assembly **14**. Specifically, the securing member **152** slidingly engages a portion of the inner wall **170** of the cross-member **28**. In addition, the support member **166** engages a portion of the inner wall **170** and/or an outer wall **174**.

The securing member **152** and the support member **166** continue to engage the cross-member as the downward force is applied to the shelf **150**. Accordingly, the securing member **152** flexes inward an amount as the securing member **152** slidingly engages the inner wall **170** and moves from a first edge **176** of the inner wall **170** towards a second edge **178** of the inner wall **170**. As the securing member **152** slidingly engages the inner wall **170**, a first clearance **C1** exists between the securing member **152** and the shelf **150**. Because the securing member **152** flexes inward an amount, the first clearance **C1** is smaller than the initial clearance **C0**.

The securing member **152** continues to slidingly engage the inner wall **170** as the shelf **150** and the securing member **152** move towards a second position **P2**. At the second position **P2** and as shown in FIGS. 8 and 9, the securing member **152** lockingly engages a portion of a bottom wall **180** of the cross-member **28**. In addition, the support member **166** engages a portion of the inner wall **170**, a top wall **172**, and/or an outer wall **174** of the cross-member **28**. A second clearance **C2** exists between the securing member **152** and the shelf **150** when the securing member **152** engages a portion of the bottom wall **180**. Due to the flexing of the securing member **152** in the first position **P1**, the second clearance **C2** is greater than the first clearance **C1**. In a preferred embodiment, the second clearance **C2** is equal to the initial clearance **C0**.

Referring to FIG. 9, in the second position **P2**, the securing member **152** is in locking engagement with a portion of the bottom wall **180** of the cross-member **28** wherein the locking engagement prevents upward movement of the shelf **150**. The supporting member **166** is in engagement with a portion of the inner wall **170**, a top wall **172**, and/or an outer wall **174** wherein the engagement prevents downward movement of the shelf **150**. Described in a different manner, a portion of the cross-member **28** is received by the recess defined by the first, second, and third portions **166a, 166b, 166c** of the supporting member **166**. Consequently, the shelf **150** is locked in a stable position and as a result, the lower assembly **14** has increased structural rigidity. Described in another manner, the shelf **150** provides structural integrity to the lower assembly **14** when the securing member **152** and the support member **166** are located in the second position **P2**. As a result, the lower assembly **14** has a sufficient amount of stability to permit the alignment and engagement of the upper assembly **12** with the lower assembly **14**. In a configuration with a grill assembly having a single frame with no distinct upper and lower assemblies, in the second position **P2**, the securing member **152** and the supporting member **166** connect and secure the single frame of the grill assembly.

Alternatively, the securing member **152** is lockingly engaged by a structure formed in a portion of the cross-member **28** in the second position **P2**. For example, the securing member **152** is lockingly engaged by a detent formed in a portion of the cross-member **28**.

Unlike the support member **166**, the securing member **152** is adapted to be deformed between the initial, first and second positions **P0, P1, P2**. This means that the securing member **152** deforms or flexes inward as it slidingly engages the inner wall **170** of the cross-member **28**. The degree or amount of deformation varies with the dimensions and configuration of the securing member **152**. Preferably, the securing member **152** is biased towards the initial position **P0** or the second position **P2**.

The shelf **150** and its related components can be formed from plastic, steel, aluminum, or other metals, including metal alloys. The securing member **152** is preferably formed from metal because of its high strength and favorable deformation properties. Depending upon the material used to form the securing member **152**, the degree and amount of elastic deformation of the securing member **152** will vary.

In another preferred embodiment shown in FIGS. 10 and 11, the grill assembly **10** includes a shelf **250**. The shelf **250** has a pair of opposed first edges **254** and a pair of opposed second edges **256**. The edges **254, 256** form a perimeter P of the shelf **250**. Although shown as having a generally rectangular configuration, the shelf **250** can have a variety of configurations, including square, elliptical or other curvilinear shapes.

The shelf **250** has at least one securing member **252**. The securing member **252** is a flexible structure adapted to be deformed or displaced a distance. Preferably, the securing member **252** extends from the shelf **250** such that a clearance exists between the securing member **252** and the second edge **256**. Although shown as having an angular configuration, the securing member **252** can have a curvilinear configuration. Described in a different manner, the securing member **252** is an elongated tab that extends from the shelf **250**.

Preferably, the shelf **250** is a wire rack formed from a plurality of welded rods. The shelf **250** comprises a plurality of longitudinal rods **260** and a plurality of transverse rods **262**. Although the transverse rods **262** are shown in FIGS. 10 and 11 as being positioned below the longitudinal rods **260**, the orientation of the rods **260, 262** can be varied according to the design parameters of the shelf **250**. A raised or angled portion **264** is positioned proximate the second edge **256**. Alternatively, the raised portion **264** is positioned proximate the first edge **254**. Because the shelf **250** is formed from a plurality of welded rods, the shelf

250 is stronger and more rigid than existing shelves having a thin-wall construction. Although shown as having a plurality of apertures or openings resulting from the intersection of the rods **262, 264**, the shelf **250** can have a solid construction without apertures or openings.

The shelf **250** has at least one support member **266** extending from the first edge **254.** The support member **266** is adapted to engage a portion of the cross-member **28** when the shelf **250** is connected to the cross-member **28**. Referring to FIGS. 10 and 11, the support member **226** has a first portion **266a**, a second portion **266b**, and a third portion **266c,** and a fourth portion **266d** defining a recess adapted to receive a portion of the cross-member **28**. Preferably, the recess has dimensions slightly larger than the dimensions of the cross-member **28**. The support member **226** has an angled or sloped configuration which facilitates engagement with the lower member **28** without causing abrasions on the lower member **28**. Although the support member **266** is shown as having an angular configuration, the support member **266** can have a number of configurations, including a curvilinear configuration.

The shelf **250** has at least one finger **290** extending from the first edge **254**. The finger **290** has a first portion **290a** that is substantially vertical. The finger **290** is adapted to engage a portion of the cross-member **28** when the shelf **250** is connected to the cross-member **28**. Specifically, the finger **290** engages a portion of the inner wall **170** of the cross-member **28**.

Although FIGS. 10 and 11 show two separate securing members **252**, two separate supporting members **266**, and two separate fingers **290**, the precise number of these elements varies with the design parameters of the shelf **250** and the lower assembly **14**. Accordingly, the number of securing members **252**, supporting members **266**, and the fingers **290** can be increased or decreased.

At an initial position **P0** (not shown), the shelf **250** is generally positioned within the interior space **40** but does not engage any portion of the lower assembly **14**. At the initial position **P0**, the lower assembly **14** lacks structural integrity because the H-shaped assemblies **30** are not connected. At the initial position **P0**, an initial clearance **C0** exists between the securing member **252** and the first edge **254** of the shelf **250**.

The shelf **250** is adapted to be moved between the initial position **P0**, a first position **P1**, and a second position **P2**. When a sufficient amount of force is applied to the shelf **250** in a downward direction, the shelf **250** moves from the initial position **P0** towards the first position **P1**. At the first position **P1**, the shelf **250** is positioned within the interior space **40** and in partial engagement with the lower assembly **14**. Specifically, the securing member **252** slidingly engages a portion of the inner wall **170** of the cross-member **28**. Also, the support member **266** slidingly engages a portion of the inner wall **170** and/or an outer wall **174**. In addition, the finger **290** slidingly engages a portion of the inner wall **170** of the cross-member **28**.

The securing member **252**, the support member **266**, and the finger **290** continue to engage the cross-member **28** as the downward force is applied to the shelf **150**. Accordingly, the securing member **152** flexes inward an amount as the securing member **152** slidingly engages the inner wall **170** and moves from a first edge **176** of the inner wall **170** towards a second edge **178** of the inner wall **170**. As the securing member **252** slidingly engages the inner wall **170**, a first clearance **C1** exists between the securing member **252** and the shelf **250**. Because the securing member **252** flexes inward an amount, the first clearance **C1** is smaller than the initial clearance **C0**.

The securing member **252** continues to slidingly engage the inner wall **170** as the shelf **250** and the securing member **252** move towards a second position **P2**. At the second position **P2**, the securing member **252** lockingly engages a portion of a bottom wall **180** of the cross-member **28**. Also, the support member **266** engages a portion of the inner wall **170**, a top wall **172**, and/or an outer wall **174** of the cross-member **28**. In addition, the first portion **290a** of the finger **290** engages a portion of the inner wall **170**. A second clearance **C2** exists between the securing member **252** and the shelf **250** when the securing member **252** engages a portion of the bottom wall **180**. Due to the flexing of the securing member **252** in the first position **P1**, the second clearance **C2** is greater than the first clearance **C1**. In a preferred embodiment, the second clearance **C2** is equal to the initial clearance **C0**.

In the second position **P2**, the securing member **252** is in locking engagement with a portion of the bottom wall **180** of the cross-member **28** wherein the locking engagement

prevents upward movement of the shelf **250**. The supporting member **266** is in engagement with a portion of the inner wall **170**, a top wall **172**, and/or an outer wall **174** wherein the engagement prevents downward movement of the shelf **250**. The finger **290** is in engagement with a portion of the inner wall **170** wherein the engagement prevents lateral movement between the structures of the lower assembly **14**. Consequently, the shelf **250** is locked in a stable position and as a result, the lower assembly **14** has increased structural rigidity. Described in another manner, the shelf **250** provides structural integrity to the lower assembly **14** when the securing member **252**, the support member **266**, and the finger **290** are located in the second position **P2**. As a result, the lower assembly **14** has a sufficient amount of stability to permit the alignment and engagement of the upper assembly **12** with the lower assembly **14**.

The shelf **250** and its related components can be formed from plastic, steel, aluminum, or other metals, including metal alloys.

The barbecue grill assembly **10** can be assembled in a method involving a small number of steps. The shelf **50** is positioned within the lower frame assembly **14** and connected to the frame member **26, 28** in the manner disclosed above. Thus, the shelf **50** connects and secures the lower assembly **12.** The upper frame assembly **12** can then be brought into engagement with the lower assembly **14.** The cooking chamber 16 and the related controls can then be positioned on the upper assembly **12.** Alternatively, the cooking chamber **16** is connected to the upper assembly **12** to secure the upper assembly **12.** Next, the upper assembly **12** is brought into engagement with the lower assembly **14.** Means for securing the upper and lower assemblies **12, 14** are then applied to secure the grill assembly **10.** Securing means can include a threaded fastener and nut, or a projection and a receiver.

Alternatively, the grill assembly **10** can have single frame assembly without distinct lower and upper assemblies **12, 14.** Consistent with the above disclosure, the shelf **50** is connected and secured to a lower portion of the single frame assembly. Next, the cooking chamber **16** is connected and secure to an upper portion of the single frame assembly. Means for securing the single frame assembly are then applied to secure the grill assembly **10.** Securing means can include a threaded fastener and nut, or a projection and a receiver.

While specific embodiments have been illustrated and described, numerous modifications come to mind without significantly departing from the spirit of the invention and the scope of protection is only limited by the scope of the accompanying Claims.